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Second Annual Meeting of the American Gas-Light Association.

HELD AT THE POLYTECHNIC INSTITUTE, BROOKLYN, N. Y., OCTOBER 21ST AND 22D, 1874.

AFTERNOON SESSION OCTOBER 21st, 1874.

On motion of Mr. Cartwright the President appointed a committee of five, consisting of Messrs. Cartwright, Hostetter, Leavenworth, Neal and Dickey, to prepare a list of officers for the ensuing year.

A communication was read from Professor Henry Wurtz, dated Hoboken, New Jersey, October 20, 1874, which was ordered to be placed on file.

The Secretary read a paper—

ON SUNDAY LABOR,

by James H. Walker, Superintendent and Engineer of the Milwaukee Gas-Light Company, Milwaukee, Wisconsin.

Mr. President and Gentlemen—

The subject of the paper I am about to read to you is one that we think deserves our best and most anxious consideration, especially when we consider the crisis which we have passed through, within the last few years, arising from the contest between labor and capital. We think that as a profession we are more deeply interested in this subject than almost any other class of employers. While gas companies are held by the public to be preeminent amongst corporations for their want of soul, yet that same public expect from gas companies a faithful performance of all contracts made with them, particularly as regards an unfailing supply of that light which is now almost indispensable to existence in any town or city. The tailors may tell you the men have struck work and you can't have your garments, the dressmaker may tell your wife or daughters the same story, and even if the dress were for a wedding, the disappointment would be forgiven. But let the gas company by any such accident, over which they have no control, be unable to supply the needed light, and forgiveness is impossible; they will be pursued in a court of law for damages, which the court will, in its own time, award with a swingeing bill of costs against the company, which will have to pay them.

Now, in order for the future to remove much of that feeling among our workmen, which causes these contests of labor and capital, we must consider another question besides the mere question of money wages, and that other question is the subject of this paper.

That question is—ought the gas-worker to have, like other workmen, his weekly Sabbath of rest from his secular employment?

This question is one of great importance to the moral and mental improvement, and to the physical health and comfort of our employees—and moreover to the effective and perfect operation of our gas-works.

We do not wish to plead for any sectarian views of the Sabbath; we would leave every workman to his own conscience as to how he would improve his Sabbath; but we would gain for him, if we could, the full right to have a Sabbath of rest, by abstaining as much as possible from his secular employment on that day, which is the main thing peremptorily and expressly required in the Third Commandment. To keep it holy is left to his own conscience, there, as to the way of holiness—but to abstain from work is expressly required.

It would take very little research among medical authorities to prove that continued daily labor all the year round, without weekly intervals of rest, is a most unwholesome practice. The man who follows his business in such a way, like a bow never unbent, can have no relaxation, and no recuperating spring from unrelaxed toil; the result is that his labor is sickly and languid, and depressing to his whole frame. In such a state it is an utter impossibility that the productiveness of his labor to his employers can be at all equal to the labor of a man who works the same time, say a year, with the proper and necessary intervals of rest and recreation. The latter works with better health and elasticity of spirit, and without the languid and fagged depression of soul and body that comes over the unrested laborer; and the intelligence of the man who has had the Sabbath interval of rest, is active and eneregetic compared to the man's that is sunk into the stupid drowsiness of unrested toil.

On these points, without troubling you with the many eminent medical authorities that might be named, I would confidently refer you to the evidence of John Richard Farre, M. D., of London, "an acute and experienced physician," before a committee of the British House of Commons, appointed in the year 1832 to investigate the effects of laboring seven days in a week, compared with those of laboring only six and resting one. You will find it in pages 34 to 39 of the Sabbath Manual by the Reverend Justin Edwards, D D.; and I think it satisfactorily proves all that need be advanced on the subject that a man should have his Sabbath of rest, and to render it very desirable, by both employer and employee, that the gas-worker should have it.

Again, the man who is wholly occupied for a year without proper intervals of rest and recreation can have no comfort, and without comfort his work can never be so productive as that of another who has the proper intervals of recreation, and time to look after the things that pertain to his comfort. The very fact that one likes to be clean and well dressed of a Sunday leads to habits that tend to comfort and health, which, in the majority of cases, are totally unattended to by the workmen that have no Sabbath, or who neglect the Sabbath and unnecessarily work secularly on that holy day.

There are many occupations that require great exertion of body, of muscle, and strength, and were these exertions continued daily for a year without the weekly, or even greater intervals of bodily rest, they would be destructive of both body and mind, for the health of neither could stand it. The collier, the mason, the bricklayer, the carpenter, the ploughman, the laborer, the digger, the worker in the earth, and the sailor on the seas, if by any of these, and many others, the strain of exertion at their labor was kept up daily for a year without the weekly interval of rest, or in the case of the sailor without frequently greater intervals, the result would be, in the majority of cases, ruined health, weakness, and premature old age.

In the case of the gas worker it is still more certainly so, for all day he has to work in an artificial and furnace heated atmosphere, sweating and poking at enormous fires, pulling, lifting, hauling and shoving at enormous weights of coal and coke, and other materials, with his every faculty of body and mind on the stretch to see and fix all right, so that there be no danger to himself and others; and all this continued from morning till night for six days in the week—so that, when Sunday comes round, he is in a truly fit state to require that rest of body which the Third Commandment secures to the industry of mankind.

It is, that these useful workers for the general comfort, convenience, beauty, and health of our towns and cities, should have, as much as possible, like almost all workers in other employments, a Sabbath day of rest once a week from their secular employment, that we here speak. We know that in many cases it can only, to a certain extent, be gained by having sufficient storage; but we would have it as much as possible obtained, because it is an indispensable necessity to the health of the workman, and to the greatest profit and usefulness of the works.

There are two contingent arguments—one against, and one for—the workman being allowed his Sabbath in gas-works, on which I at present put little stress. My object is to improve the condition of the men we at present have, not to speculate upon the condition of those we may have, when Sunday can be kept in gas works. The opponents of the measure, say, that no work on Sunday begets dissipation, but the answer to that is—it is not usually the dissipated that work on Sunday or on any other day, if they can help it, and men inclined to dissipation on that day, whether good and industrious men work on it or not. Therefore I think this argument for abolishing Sunday with

any class of workmen is futile and untenable. Then again, some think that if you were to put an end to Sunday work, a better class of men morally and physically would enter into gas works. It may in some cases turn out so, but I suspect not to anything like the extent some imagine. The men we have are generally good and excellent at their business, which they have thoroughly learned, and it will not be easy for any new hands soon to supersede them—and why should they be superseded? Grant them the Sabbath as other workmen in other businesses have, and it will be seen that in intelligence and physical endurance they will generally more than match any men new to the business that can be found; and that in fact nothing but the tear and wear of time and age can make room for new men to take their places, just in the same way as in other kinds of work.

It is quite unnecessary in this Christian Land to say anything about the means of Grace, or of religious, moral, and mental improvement, which the securing to the gas-worker his weekly Sabbath of rest from secular work would in most cases ensure to him. The gas-worker naturally is as ambitious of self improvement as the workers in other employments; and as we well know that for all the givings of the rich to our churches, still these churches (even fashionable ones) make but a poor show, if the givings and presence o the working classes are withdrawn from their support; and as there is no class of workmen, if allowed the time, who would, in proportion to numbers, pay a greater share of attention and support to the religious, moral, and intellectual institutions of the land, it is clear that if they had that time, the churches, and other institutions for moral and mental edification would be improved by them, as by other workmen, for their own behoof, as well as for that of their fellow citizens and fellow Christians.

There are indeed some men in every country who are so given up to covetiousness and grasping after riches, that they overreach themselves, and labor after their misnamed wealth all the day, and almost half the night, all the year round; and they would have others in their employment do it too if they could, at the lowest wages and for scarcely thanks, thinking they have done a clever thing when their avarice can screw such service out of a man's necessities. But they are the miserable slaves of filthy lucre, the bigoted and superstitious worshippers of the golden calf, the despised and rejected of all workmen, and with whom no workman good or bad will remain one hour longer than his own necessities require.

It is needless to appeal to such as these for a Sabbath for any class of working men. They feel no desire for such a day themselves, and they cannot conceive why any man should require it. But we appeal to all men whom the love of truth inspires, whom religion, morality, and intellect guide in the way of truth and right, and who have any influence or partnership with gas companies, and employers of gas-workers—that they use that influence to secure to the gas-worker, as much as possible, the weekly Sabbath of rest from his daily secular toil.

Having given you some theoretical arguments, drawn from general consciousness and experience, in favor of Sabbath rest in gas works, I will now tell you what my particular experience has been in this matter. And as I have noticed that considerable credit is being given to parties on the other side of the water for being the foremost in the wise and judicious course they have taken in this matter—all honor to them we say. But we can tell you, gentlemen, that away back thirty years ago, a near and respected relative, now deceased, and a manager of gas works, made it a rule that a portion of his men should always have the Sabbath rest, and that no more work should be done than was absolutely necessary to insure a sufficient supply of gas. For twenty years we have made it our practice in this country to give all the rest possible, in works we were running, on the Sabbath.

In the Fall of 1860 I took charge of the working department of a works in a New England State, making about 100,000 cubic feet per 24 hours. The president, a Christian in every sense of the term, suggested that if it were possible to do without Sunday labor he would be very glad, as he considered it a grievous wrong to compel any man in his employ to do that on the Sabbath which would deprive him of the privileges that he himself enjoyed; namely, of the opportunity to worship God according to the dictates of their conscience, and further—the men's pay was to be the same as if they worked the seven days. Now, gentlemen, I think that if there be honor due any one in this country, it is to the president of this New England company for the Christian and liberal manner in which he acted towards the men, setting an example worthy of imitation in this and every other country. His instructions to me were that he wished as little labor done on the Sabbath as possible, and I immediately commenced to carry out his suggestion by reducing the labor (as far as storage would allow) to the work of one man. My practice was to order heavier charges for the last round on Saturday night. When that was in all the men were to go home but one, who was instructed by the foreman to fire steadily till a certain hour, then to parrially close the dampers and strike off the lids as the charges came off, leaving the lids open just sufficient to allow the gas to pass off. The gang that went off at 6 P. M. on Saturday, were instructed at what time they were to come in on Sunday night; the man on duty was informed of this, and his business was to open dampers, (one hour before the men came in) shake up fires and have them in proper condition for cleaning. When the gang came in their first duty was to clean fires and have them well started before drawing and charging, if circumstances required it. The benches were put in as fast as possible, varying the weight of charges, so as to have them c me off about the regular time. I have continued this practice since the above named date, and the results to myself, and the companies into whose works I have introduced the practice, have been entirely satisfactory—and are as follows:

1. I have used clay retorts exclusively, with and without an exhauster.

2. Their life has been from 2 to 3 years working time, and the product per retort, (which we think is the proper way to value a retort) has been from 5500 to 6500 cubic feet per 24 hours (with for the best Pittsburgh or Youghiogheny coal) a yield of from 4·80 to 5·25 cubic feet per lb.

3. The quantity of coke used when laying off is small; but the temperature of the retorts is almost always higher than usual. The gas is rapidly evolved and though there may be in old retorts a few leaks, they are quickly stopped, and the yield for the 24 hours is generally up to the average.

4. The men are more attentive to their work—their fires are kept in better condition—consequently we have better heats and better yield per bench and per lb. of coal.

5. They do not require to be so constantly watched and urged on with their work, as the more gas in the holders by stopping time on Saturday night, the longer they can stay out on the Sabbath.

6. My men have improved both morally and physically, and when new men are required a better class can be got.

In conclusion, let me advise you to read carefully the endorsement this matter has received, in a communication to the AMERICAN GAS LIGHT JOURNAL of August 17th, by Theobald Forstall, Esq., General Superintendent of the New Orleans Gas Light Company. I fully affirm every fact there stated. I would ask you, gentlemen, presidents, directors, and Superintendants of gas companies to give this matter your most serious consideration, as one bearing with much greater force on the successful operating of your works, than at first sight appears; and further, in the language used in the inaugural address of the president of our sister association in Great Britain, "It can be done, it ought to be done, and the shareholders, directors, and managers who withhold an inalienable right from their fellowmen, which is in their power to bestow, are incurring a responsibility that no man of just and right principles would be willing to bear."

On the conclusion of the reading of this paper a vote of thanks was tendered to Mr. Walker by the association.

The committee appointed to prepare a list of officers, presented the fallowing list:

President—Gen. Charles Roome, New York.

Vice-Presidents—W. H. Price, Cleveland; Elias H. Leavenworth, Syracuse: Oscar G. Steele, Buffalo.

Secretary—Charles Nettleton, New York.

Treasurer—P. E. DeMill, Detroit.

Finance Committee—John S. Chambers, Trenton; J. P. Harbison, Hartford; George A. McIlhenny, Washington.

Executive Committee—W. H. Dennison, Pittsburg; George D. Cabot, Lawrence; A. H. Hickenlooper, Cincinnati; Henry Cartwright, Philadelphia; W. H. White, Brooklyn; Henry Stacey, Indianapolis.

Adopted unanimously on motion of S. Lewis.

The report of the committee was accepted and adopted.

Gen. Roome—Gentlemen; You have been pleased to reappoint me your presiding officer for the ensuing year. I was in hope that the adoption of a new constitution would relieve me from the cares of office. Perhaps the duties are not very great. The state of my health has been very imperfect for the past year. I have suffered very much, struggled very hard, but still since you have been pleased to replace me here, I thank you, gratefully thank you for the confidence reposed in me, and, with God's blessing, I will endeavor to discharge my duty to the utmost of my ability. (Applause.)

On motion of Mr. Neal, the President asked and obtained unanimous consent to have inserted in the Constitution, section one, under the head of officers, after the word "annually," the words "by ballot." The President declared the words to be a part of the Constitution.

On motion of Mr. Neal it was voted that when the Association adjourns it adjourn to meet in this room to-morrow morning at 10 o'clock.

Capt. William Henry White here read a paper

ON NAPHTHA—ITS ECONOMY AND VALUE AS A GAS PRODUCER.

Historical Facts from its Discovery to the present day.

By W. Henry White, Engineer Citizens Gas-Light Co.

Mr. President and Gentlemen: In accepting the invitation of the Association to prepare a paper upon the use of Naphtha in the production of illuminating gas, I was conscious of entering upon a "debateable ground" more haunted by spirits of the past than that of Dale Owen, heaped with the wrecks of past effort, strewn with the mouldering skeletons of earnest yet faulty endeavors, and marked "dangerous" upon all its wayside sign posts.

As past failures are not of necessity prophetic of present defeat, it being a natural law that the fairest harvests are reaped from soils torn and fretted by plough and harrow, and enriched by the decay of the residuals of other harvests, I trust I may be able to show you that some worthy results have sprung from many a untoward beginning: and I beg your attention to such thoughts and facts as I shall present upon the subject of this paper. Thoughts that are the result of a patient, untiring feeling of my way into a more thorough and practical knowledge of the value of oil gas, and which have crystallized into facts in whose light and on whose uncompromising strength, I now presume to address you.

Viewed from the stand point of our present knowledge of the manufacture of gas from coal, the maximum yield of gas of a good illuminating power appears to have been obtained, further progress being stayed by the inexorable law of a standard illuminating power. Could this barrier be overthrown, the skill of engineers would donbtless point out methods of obtaining larger yields of gas of low illuminating power, from coal.

But this is an unsurmountable barrier, and the fact that the standard of illuminating power will be raised rather than lowered, together with the continual call for a reduction in the price of gas to the consumer, bring us inevitably to the question—How can this difficulty be best overcome? Petroleum and its products naturally suggest themselves as the means of escape from this dilemma, they being at once abundant, cheap, more readily obtained, transported, and compactly stored, than the high-priced enriching coals now in use. Considerations touching upon the cost of labor, material, and apparatus, may be adduced as enhancing the important claim of this natural oil upon our attention. Still others arise to show the benefits that would accrue from our being thus enabled to lessen the original cost of the plant, and to cheapen and improve the production of gas, thus widening the field of gas industry, and extending to the smaller towns the advantages of this modern necessity.

Enough has been said of late years, to call the attention of the capitalist, the scientist, and inventor to this fruitful and fallow field. Indeed, while the earnest searcher for truth in this modern path was but entering into the primary experiments incident to his discoveries, hundreds of charlatans flung themselves into the breach, and have overrun the gas community with undoubted patent specifics for all the ills our industry was popularly judged to be suffering from. Men whose phrenological developments indicated that their enormous "self-esteem, ideality, and acquisitiveness" were far in excess of their "perceptive" and "constructive" faculties, hurried from shop and office with revamped English and continental patents to reform any old fogyism yet lurking in our midst, to worry the suffering "gas man" pale and thin, with the details of processes whose merits were in the vocative case. The patent office has been alike the tool and victim of these men, and patent rights have been granted, *ad libitum*, to those who unblushingly appropriated and galvanized into life, the dead andburied failures of our gas ancestry, and now offer them to our notice, with an impudence that soars into the region of the sublime, as "my process." I "no further seek his merits to disclose;" you have all met that terrible man who has an important improvement to offer. You have seen the sanguine light of his eyes, heard the unctuous, mellifluous tones of his persuasive accents; have marvelled at his elegantly upholstered exterior—known his anxiety to advance your personal interests, not in the way of a vulgar bribe, oh dear, No Sir, nothing of the sort, only to open up to you the golden vista of years to come, when his patent shall have been adopted, the gas fraternity saved, and you calmly happy, as the richly rewarded instrument of so much good accomplished. Let me turn from this unpleasant body, and look to the other and earnest worker striving for the solution of this problem, and see if—in the tangled skein, a very Peruvian Quippo of woven snais, the confusion worse confounded of so called oil patents—any good may be brought out of such a chaos.

I will here be, for a moments retrospective. It may be of interest to know, that years ago, even in the infancy of gas-making, oil contended for the palm with coal, so that to-day, as though to prove the weary proverb, "Nothing new under the sun," we have to deal with no new question. Accum and Peckstone, early workers in and writers on gas, give cuts and descriptions of machinery for producing oil gas, and bear testimony that it was a formidable rival of coal gas. It cropped out in subsequent writers and found supporters in an array of prominent persons and scientists; patents were issued to Messrs. Taylor, Daniell, Hills, and a host of lesser lights, covering the manufacture of gas from resins, fats, oils, naphtha and peat, with all manner of combinations and amusing styles of machinery; nothing of value, unless it was experience, appears to have grown out of all these trials, and "failure marked them for her own." Was the failure inherent in the material, mode of treatment, or lack of proper knowledge on the part of the experimenters? Nobody can tell us, for, apparently, no one has taken the trouble to ascertain. The obituaries of those promising schemes were briefly written by Clegg and his immediate predecessors, and looking back to them to day, with hungry, questioning eyes, we mentally repeat the old obituary upon babes early called from life, "If so quickly you were done for, I wonder what you were begun for," and so unsatisfactorily leave the matter to the wisdom of future generations.

The patentees and inventors immediately preceding the present age, seem to have met with no kindlier fate at the hand of fortune, and one scheme after another breaking down, carried with them the hopes of their abettors, and weakened the trust of the gas interest in the ability of any one to produce, in this connection, a satisfactory method of treating oleaginous matter.

The opportune discovery in this country of the existence of inexhaustible stores of petroleum, however, again naturally attracted attention to oil as a gas producer; 'twas then there arose that wild, helter-skelter of visionary schemes referred to. Another effect of this discovery was to bring to the surface a desire on the part of earnest, thoughtful, practical men to put to test their vague belief, that in some way, the old idea of the use of oil might yet be reduced to a practical standpoint. This faith has in one way and another found constant expression among us. The continued experiments of American gas experts, proves that the idea of oil gas, though apparently committed to the care of enthusiastic amateurs, had always been working its way with quiet energy into the very inner courts, and now springs into life, here and abroad, with a power and an unquestionable right of position, that at once lifts it out of the plane of amateur trifling and professional charlatanry. It had but slumbered, as it were, all these years, and on its awakening makes itself felt in the way and manner of that forceful political unknown quantity, so feared and respected by politicians—"the silent vote," and like that demands consideration.

It would, indeed, be unjust to some, did my semi-jocular remarks in opening this paper, convey to you the impression that I believed that no man or number of men had earnestly striven for originality in their endeavors to utilize petroleum and its products. Still the fact that they all seemed to cluster around and cling to the essential features of old foreign patents, and could not or would not advance one step beyond and into the unfathomed depths, is indisputable. I have refrained from referring to names in speaking of these patents, as I neither wish to advertise them, nor do them injustice; many of their mistakes were at least honest ones, while many men whose training and habits did not entitle them to success in any legitimate business, endeavored to take advantage of these schemes as a royal road to fortune; hence the whole subject became involved in bad odor, and consequently was long tabooed by all gas companies.

The patents known as the Gale-Rand were really the first American patents to create any degree of attention, and though these contained the vital points of some English and American patents, their experimental trial at Saratoga proved such an advance in the right direction, as to prove a decided gain, even though admitted, for certain reasons, not to have been a commercial success. There were radical errors in the theory and practice of these patents, that have since caused them to be a generally admitted failure. So much enlightenment upon the vexed question of naphtha-gas sprang from the many trials made under these patents, that the gas community were prepared to listen with more tolerance, and investigate with superior skill and upon more accurate data, the claims of subsequent inventors or patentees in the same line, especially as in large areas of our country, the enormous cost of coal makes such questions and investigations of great economic importance to those who no longer feel immovably attached to coal as the sole source of gas supply. It is impossible to deny, that the results referred to, although not always exact enough for scientific data, still sufficed to indicate that a material difference existed, both as to the quality and economy, in favor of the use of naphtha, as compared with coal, in gas manufacture. These experiments also developed the important evidence that oil gases were of greater value used in combination with coal gas, than when used alone. Their great specific gravity and excess of carbon necessitates that they be diluted by some lighter gas, and containing a large percentage of hydrogen.

The diluent used in their experiments was atmospheric air, which was fatal to combustion and deleterious, in adding to an already excessive specific gravity. It was to this point these patents had led us, and in thus opening the way to future investigations, they hold us so far their debtor.

Next in order, I present and consider those granted to Mr. George Olney. Differing in essentials from those of Rand they gave satisfactory, if not perfect results. In order to mark the difference I will briefly describe the claims of these patents.

It will be remembered that in the Gale-Rand process, the naphtha in the still was first vaporized, either by the application of direct heat or the use of superheated steam; and the vapors so produced converted into fixed gas by passing them through a heated retort, and subsequently diluting them to the required standard, by the mechanical admixture of atmospheric air at the exhauster or meter. Stratification of this air and the naphtha gas always took place, as no chemical union had or could have taken place between them. The "Olney Process" also makes use of a still in which the naphtha is placed, and heated by ordinary steam to a vaporizing point—the diluent to be used, be it air, water-gas, or coal-gas of low illuminating power, being forced through the liquor contained in the still. Being thus carburetted, it is then carried to and through the retort, but without carrying any excess of carbon-vapors to be converted into lampblack, or wasted as in the former process; the vapors and their diluents are thus converted into a permanent gas as little liable to condensation or stratification, as is gas made alone from coal after the usual processes of purification are completed.

The results obtained from this latter process are a decided improvement over those obtained from its predecessor. The many important improvements that have been embodied in the patent, and the results obtained at the works under my charge, as well as at other works using this process, will I think justify me in claiming for it a fair success. As employed in the manufacturing at my works, I make my coal gas of as low illuminating power and obtain as large a yield as possible. A portion of this gas being thus mixed with hydrogen, or, strictly speaking, water gas, is carried to the naphtha works and forced through the stills, where, from chemical affinity, it takes up the naphtha vapors; being thus enriched it passes through heated retorts forming a perfect chemical union or permanent gas. Its subsequent treatment is simply that now used in the condensation, etc., of ordinary coal-gas.

We have introduced the use of water gas to increase the quantity of diluting hydrogen, thereby lightening the specific gravity and increasing the calorific power of the gas, that the carbon may be properly consumed and give no smoke at the burner. The result has more than justified the experiment.

As this process of manufacture has been in operation at the Citizens Gas-Light Company's works for a period of over 18 months, I trust I am able to answer any question or meet any objections of gentlemen present from actual facts, as demonstrated in our daily working.

Permit me at this point to answer some of the leading objections which have been urged against the use of oil for gas purposes.

1st. "Such gas must be more liable to condensation than coal-gas."

2d. "Oil gas will stratify in its storage or distribution."

3d. "There is a greater loss of illuminating power in the distribution through mains."

4th. "The greater danger in manufacturing."

These objections have become stereotyped to me,

still I cannot but believe them to be the honest doubts of those willing to be convinced, and as such will, in like spirit, answer them.

As to condensation. We have been manufacturing the gas supplied in our district, varying in proportion from one-third to one-half from naphtha for 18 months. Hence the gas has been subjected in storage and distribution to all the variations of temperature and change of weather such a period would naturally produce, yet we find no cause to believe that this gas, properly made, is as condensable as coal gas; this must be the fact, since the street drips show a marked decrease in "drip liquor" from what they caught under the old method.

The same facts are substantiated on the question of stratification, none having been observed though carefully watched for, since we ceased using air as a diluent of the naphtha gas.

The question of loss of illuminating power I have found to be without any foundation. To the eye the gas seemed equally good at all points of distribution. However, not being willing to trust the truth of so important a point to a test so easily led astray, I made repeated photometrical tests of our gas, taken from the mains at various points in the district, on different occasions, in both warm and cold weather, clear and stormy weather, and found in all cases but a trifling variation from that given in the tests made with the gas at the works. The general appearance of the gas in a district supplied, together with the expression of a great majority of consumers, seemingly by nature biased against any gas company, is no poor test as to its quality; submitted to such tests our gas has proven highly satisfactory.

Regarding the dangerous feature, the general and certainly very natural apprehension is overstrained. The storage of a large quantity of naphtha in steam tight iron tanks, properly provided with vent pipes; its passage through iron tubing, underground, from tank to still, and its final vaporization in a steam-tight iron still, at low temperature and pressure, does seem to reduce the possibilities of danger to "nil."

As a class we are trained to watch over and protect much more dangerous and exposed portions of our works than any naphtha still or tank can ever be, and have in the large stores of coal on hand, a lurking enemy ever ready to spring into action.

In a paper that will to a certain degree be public, I question the propriety of, and have, therefore, refrained from giving exact figures or details of cost of manufacture, etc. I cannot but consider such data the property of my company as constituting the private records of their business. I am, however, free to say that the company, even in days of cheap labor and coal, were never able to produce gas so cheaply or of such quality as it now does. I may further safely say that we put our gas into the holder for one-third less cost than we ever did or could do with coal alone.

These are facts based on our past business, upon which our dividends have been paid, and are in no wise estimates or suppositions.

I do not claim that such results came to us at the outset, neither had the patentee or ourselves a full knowledge of the capabilities of the gas experimented on, nor the experience we may justly claim for our guidance in future efforts; difficulties had to be met, unforseen obstacles removed, opposing influences counteracted, consumers trained to the change, and ourselves to be educated; the long weary list of vexations, anxious hours over the many little points that always threaten defeat in the development of any new plan of manufacture that must be passed. Through all, the certainty of a priceless result has kept us striving.

To-day, with all the success we have gained, we do not claim to have perfected the work, but rather stand ready to give a hearty welcome to the new mind that shall penetrate still further into this field. I have a great feeling of satisfaction and of being fully rewarded for all the trouble and labor I have had, in the pleasure I have of managing so simple an operation in gas production, and in to-day's comfort I really wonder if all the troubles, of which I have spoken, ever arose before me.

The gains from the use of naphtha or oil gas are direct and indirect Direct, as it touches the labor, coal and lime. Indirect as it touches the question of repairs, maintenance and construction, preventing the need of large retort houses, coal stores, or large storage capacity.

The labor is reduced nearly one half, coal more than half, and proportionately larger yields of gas from coal used; as oil gases do not require lime purification, a consequent reduction in use of lime ensues.

The interest saved on money now invested in large supplies of coal, and the absolute saving in weather waste of coal are of themselves no inconsiderable items of gain. The present annual renewal of retort benches dwindles into small proportions before the use of oil. Enough residuals, as coke and tar, are made to sustain the working benches, and yet give a balance for sale. In the construction of new plants large savings can be made, as extensive buildings are unnecessary.

But enough; there cannot be a doubt of the economy or value of oil gas as an auxiliary to coal gas. Our present knowledge of its manufacture does not justify us in using it alone to any extensive legree. The present vital need in the manufacture and use of oi gas, is a cheap method of producing free hydrogen for use as a diluent, or the ability so to reduce the gravity of coal gas, that it may sustain that relation more perfectly than at present; for while the water gases now in use aid in the more perfect combustion of oil gas, they detract nothing from its specific gravity, as they bear in them too great a percentage of carbonic oxide.

I have, in conclusion, purposely withheld from urging upon you any comparative results obtained from the two methods of manufacture, or of entering into seemingly learned disquisitions upon the nature of the gas produced from naphtha, as its chemical and physical attributes are subjects of common knowledge among you.

I could not anticipate that within the limits of such a paper, or of your patience on this occasion, that such details could be enumerated as would immediately convince you, or entirely remove your honest doubts.

It will suffice if I have awakened within you a desire to make personal investigations in this direction, in which I frankly admit, that I believe the next great changes in our system of manufacture will occur.

Mr. Lewis, of Detroit, moved that a committee of three be appointed to report to this Convention tomorrow, on the value of naphtha gas compared with coal.

The motion was carried, and the president appointed Messrs. Neal, Cartwright and Dwight.

Mr. Neal—Mr. President: I think that the paper presented to us has been exceedingly interesting. It seems remarkable in Brooklyn that there is one company doing so well, and there may be others doing the same thing. I have heard of this process of Gale & Rand. I think I went to Saratoga and examined it, and in Brattleboro a similar process, and I was satisfied of its perfect failure. Now the reader of the article has something new, and I suppose that he will be glad to have us visit his works. How is that? Is there anything secret?

Mr. White—No, sir, we have invited you, through our president, to visit our works.

Mr. Neal—I would like to ask the gentleman what yield he obtains from his coal, how much to a pound, setting aside petroleum. Then what is the average candle power of the gas at the works, and at some distance from it.

Mr. White—I will say in reply to Mr. Neal, that our average yield from a ton of coal is in the neighborhood of about 12,340 or 12,400 feet to the ton; I think that will average about 5.60 to the pound. I do not call it to mind now, but it is just about in that neighborhood. Our general average to the pound is about 5.50 to 5.75. As to the illuminating power, we endeavor to run in the neighborhood of 17 candles, trying to get as near 17½ as possible. The ga was taken from the lamps upon ten different occasions, at different points in the district on the same night. The gas was tested at the works, where it travels four blocks before it gets to the photometer. In making our tests upon the gas I usually select some time during the hours of supply to the district, so as to obtain a fair test of the gas as actually delivered to the consumer. Upon these occaoions referred to, I took at ssven o'clock a test upon the photometer. I then sent out into the district men who gathered in bags gas from ten different points which I had selected as giving fair specimens of the gas from different points of supply. The gas was brought back and immediately placed upon the same photometer, and a record kept, and there was but a trifling variation found between the first test and the gases brought in from the district.

Mr. Neal—The gentleman speaks in his paper of naphtha gas. Do you mean that you use clear proof petroleum or naphtha?

Mr. White—We use naphtha because now that it is so very cheap, petroleum of itself would be no inducement; but should naphtha rise to a very high price, we could use petroleum and still use the same process.

Mr. Neal—If the company that I represent were to use that process, would not the cost of manufacture be somewhat greater for the cost of the patent?

Mr. White—The cost of the patents of course would enter in. The arrangements made with other companies have been such, that the cost of the patent has not been great or oppressive in any manner. The parties owning the patent right have been very liberal in their arrangements with the gas companies desiring to use it.

Mr. Neal—I would like to ask another question. Is this gas before us the article you manufacture?

Mr. White—I regret to say that the poverty of this gas is owing entirely to the fact that it is manufactured at the old Brooklyn works, under the direction of our friend Col. Armington. (Laughter.)

Mr. Cathels—I do not know whether the gentleman is quite at liberty to answer a question that I would like to ask, and that is, if he has kept any record of the difference between the registration of the station meter, and the returns of the consumers' meter?

Mr. White—I will answer that question with pleasure. I have said in my remarks that I consider a great many questions as to the cost of manufacture as being the private property of my company, simply because I knew that that article would be published, at least in the columns of the Gas-Light Journal, and therefrom copied in various other periodicals; but I am free to say to the gentlemen composing the association before me, that the Citizens Gas-Light Company desire to retain from them no facts bearing upon the question under discussion, and we will give them the figures at our office, with p easure. Our street lights are rated at four feet per hour. The station meters and the returns received from the street lamps, and consumers' meters in the past year, show a loss, I think, of 3½ per cent—it was less than 4 per cent; that is, the unaccounted for gas was less than 4 per cent.

Mr, Sutton—I think a year ago you used air.

Mr. White—Yes, sir, a year ago we used air, which we were using merely for a temporary arrangement, until we could get our benches for the manufacture of water gas in operation.

Mr. Sutton—Have you discontinued the use of air?

Mr. White—Entirely so, for about a year.

Mr. McIlhenny—Mr. President: I have been very much interested in Mr. White's paper. Emanating from such a source, it not only partook of the beautiful, sentimental, and poetical, but it went further, and enlightened us upon the subject of the comparative value of coal and oil. I think, sir, that it is sufficient at least to stir up the curiosity and investigative ability of the members of this association, to ascertain whether or not the sentiments expressed here in this paper are sufficient to justify extensive experiments. There is no doubt there is a very deep and wide-spread feeling now, of investigation into the gas

question. These feelings, however, arise periodically. They agitate the gas fraternity into various schemes, as our friend chose to characterize them, and are calculated to arouse the energy and inventive genius of those interested in the manufacture of illuminating gas. Such papers are always instructive, and coming from such a source as our friend, they have more weight than they would ordinarily. The paper is distinguished for its beauty. The gentlemen here will recognize the fact that all his acts pertain to that of the beautiful. When you illuminate a place you always calculate to brighten the objects around you. Sir, if these things can be done more effectually with oil than they can with coal, I am certainly an advocate for the oil. However it is a commercial question; one that the capitalists, the stockholders, and the officers of gas companies must go into, and with a seriousness that is beyond all mere verbal recitation of results. I say that this agitation of improvement and economy in the production of illuminating gas has been periodical. Since my boyhood it has been a familiar story to me. I have a limited experience in both processes: but I am not here to condemn any particular process. It is certain that these papers that are read here, and the opinions of eminent gentlemen are calculated to arouse, if no other result will follow, the energy of every conscientious and intelligent gas man who hears them. When a gentleman of character and truth asserts that he can produce, from certain materials, gas of a certain quality for 33 per cent. less than it can be produced from the materials generally used, it is worthy of serious consideration; and I think, sir, that if this subject is pursued, and a committee is appointed by this Association to investigate thoroughly this question, the minds of those who are here now, and those who may hereafter belong to this Association, will be relieved of any question of doubt on the subject; and of course if they were relieved of those questions, would at once launch into the manufacture of these cheap and very brilliant gases that are so represented here. However, there is one serious obstacle in my opinion—though this is not a fact, it is simply an opinion—raised against the universal use of oil gas. The production of petroleum, from what I can learn—I take one or two petroleum journals—is not increasing but rather diminishing. If the gas world goes into the use of petroleum, the question arises in my mind—will not the commercial value of this article go up immediately and effectually check its use? There are always certain parties endeavoring to enhance the commercial value of every article. It is argued that the production of this article is inexhaustible. The facts show that it is not. No one who is familiar with the production of gas from oil, doubts that it will produce a most excellent quality of gas, that you can produce gas cheaply from oil. That is admitted I think by every intelligent gas man; but the question is will the commercial value of that article remain the same, providing it is generally used? Supposing for instance that all the gas companies in this country change their works from coal to oil, how long would it be before the value of that article would be very much enhanced? Besides the cost of production is not so great as people suppose it is. I do not stand here to advocate coal because I have no interest whatever in it. I may have some of the old prejudices in favor of coal that exist among gas people generally, but those prejudices are subject to removal at any time, when the evidences are presented that the supply of material will be constant and the same in price. The supply of coal we all know is abundant, and has been reduced in price. The cost of the production of gas from coal has been lessened and the production has been increased. Now if this permanent and reliable source of production is thrown aside, and the gas fraternity resort to the use of oil, what will be the result? Will the oil remain at a permanent price commercially? I think not. In my investigations on this subject I found that the principal oil merchants in the country refused to contract for two months for a specific price. If that is the case with one comparatively small concern, what would be the result if the whole country used it? I think, sir, this is not a mere scientific question, but it is a commercial question, one that enters into the commercial value of the two commodities. Besides, as I said before, the reduction in the cost of manufacture is not so magnificent as some would suppose it to be. In the production of gas from coal you get a residual product. In the production of gas from oil none of these products come back. Now, sir, until that question is settled, until the question of the supply of this article is settled, I don't think that it would be policy in men who have invested their capital in the supply of illuminating gas to the country, to engage in it. I think as an auxiliary, instead of enriching coal, that oil will probably come in and supply the place; but when you commence to make gas of hydrogen and carburet it with oil, you will then stumble upon the greatest difficulty that the gas fraternity ever encountered—that is, the supply and the cost. These questions are old, older than I am. There has been no improvement in my judgment in the apparatus for making oil gas since the time of Doctor White, in 1834. His apparatus was practically the same as those used at the present day; and, as our friend has poetically illustrated, it is only the discovery of petroleum that has stimulated what he calls the inventive genius of the country, to bring this question forward. If you look over the different contrivances from that day to the present, you will find that they are practically the same. I will take the privilege of alluding to the different processes referred to by Mr. White. The Gale and Rand process everybody understands. I visited Saratoga when that process was in operation. They wrote me a letter inviting me to come. I told them that I had been in the habit of visiting Saratoga for many years, and that I never was more gratified in the world than I was to be invited and my hotel bill settled; but I did not get any response. I went, however, with several gas men, and sitting in front of the hotel, we saw the lamps, and all of a sudden, like a wil o-the-wisp, they disappeared. Well, that was stratification. [Laughter.] I, with several gentlemen, got a room, and we invited the petroleum gentlemen to come forward and give their experience and the cost of production, etc. Now I make these remarks without any intention at all to reflect upon the remarks of my worthy and estimable friend here. In these investigations we had the gentleman produce his books, showing the amount of naphtha he used, etc. I had with me the statistics of the cost of gas in Washington, all the items in the cost of production, and we found that with petroleum gas manufactured in this way, 40 per cent. air and 60 per cent. naphtha gas, the difference in the cost or economy would not justify the great risk that was to be involved in lighting a city, because that is a point that the community has a right to be interested in. You cannot experiment on a community that are paying for an article, and expect a good article—you cannot experiment on them in justice. That is to be considered by every conscientious gas company. The result of these investigations in Saratoga, showed that the difference in cost was very small. The result was that the whole thing was finally blown out and they went into the coal gas again. Then again, Mr. Olney's process is a little different, if I understand it. If I am not right I wish gentlemen would correct me. Mr. Olney's process is to produce both gases in the same retort, and mix them there and get all you can from the coal, then to inject the carbon from the oil and make a pure coal gas by the excessive carbon from the oil. That is the old story of making carburetted hydrogen. It is a mere chemical question whether you can produce carburetted hydrogen from the material that has it, or whether you can make it chemically. You make carburetted hydrogen anyhow in all these processes. Now the question is, can you make it cheaper and better chemically compounded, or can you make it better when Nature compounds it. Coal contains all the elements necessary to make carburetted hydrogen; and the question is can you make it better when you make it from the natural materials. I am one of those who do not emphatically believe in this age of progress. I think that there are certain things which cannot be done. These are times it is true of magnificent enterprises, great undertakings, wonderful discoveries; but notwithstanding these facts that we see patent before us, in the magnificent discoveries that we suppose to have emanated from this age, I am one of those who believe that they are mere recurrences of the past. Consequently I do not suppose, when such an abundant supply of coal is put at our command, that any other material will be devised until that is exhausted. These may be considered contracted, narrow views of the subject; however, they will in the end prove to be correct. The excitement in consequence of these various methods for the manufacture of gas from oil, as I said, is periodical. Your experience, Mr. President, is a living testimony to that effect. You have had instances, everyfour or five years, of the same thing. I recollect when I was a boy, in Philadelphia, when Sanders's Water-Gas came out. I was then in a very subordinate position in the gas works. The whole country was excited with this idea of making gas from water, and parties in Philadelphia having gone into it, and invested their capital, believing it to be a perfect success, the council in Philadelphia instructed Mr. Cresson, the very celebrated and competent engineer of the Philadelphia gas works, to investigate the subject thoroughly, these works being owned by the city. Mr. Cresson being a thorough chemist himself, after investigating came to the conclusion that the whole thing was an absurdity, and pronounced against it. To illustrate Mr. Cresson's idea, the Girard House was lighted by the water gas. A chemist from New York—I do not recollect his name—perhaps you can tell me who it was.

Mr. White—It was Prof. Doremus.

Mr. McIlhenny—The hotel was lighted by the water gas. Mr. Cresson said, "If this is a better thing than the coal gas we want to know it," and he sent men there to cut off the supply of the city. I speak of this now to illustrate the result of these things. If I am speaking too long I hope the gentlemen will tell me. (Cries of "Go on! You are interesting.") The parties got out an injunction. Mr. Cresson sent 100 men there and cut off the supply anyhow. The result was that the next night the Girard House was in darkness, and the chemist who went from New York (I recollect reading the circumstance with a great deal of amusement) found out that the cock that had the oil on was turned most frequently, and the one that had the water on was turned very seldom. I speak of this now to illustrate what was the result of that excitement. Of course I do not pretend to say that the same result will ensue now, but I do say that there is this to be considered by the gas fraternity, and I am sure there is no gentleman here who has money invested who is not interested in this question, because money will tell upon a man quicker than any other argument. If you can prove to a man that oil is better than water he will go for the oil, but if he likes water in his'n he will take it. (Laughter.) Where coal is abundant and cheap, there can be no question as to the economy of the two different processes. Where coal is high and difficult to procure there is, of course, some argument in favor of oil. You may make oil gas on a small scale, and make it very successfully, but when you make seven or eight millions of feet a day; when you commence to light a city with these immense proportions, you have to dilute it with hydrogen or air; such hydrogen as you have to make out of steam—and some of them do not make hydrogen, although they think they do. When you do that I think you will raise a howl in the community that every gas man would try to shun. But as I said before, no gas company has a right to go into these preliminaries until they know that they are a perfect success. They must not trifle with the interests and feelings of the consumers. Consequently, with all the respect that I entertain towards my friend and his intelligence, I do not think that he has convinced these gentlemen here, except in the simple assertion that he makes gas 33 per cent. less than it can be produced from coal. Now, I would like to

ask our friend Mr. White, what would be the effect upon the commercial value of naphtha or crude petroleum, supposing that the whole gas fraternity goes into the business. I hope you will excuse me for talking so long. (Applause.)

Mr. White—It is getting late, and we have to vacate these premises at 7 o'clock to-night. I shall endeavor to be as brief and concise as possible in my reply. I have to thank my friend for his very courteous recognition of the qualities that he supposes to be inherent fn that paper of mine. His ringing the changes upon the old story of supply, reminds me of a story told of an old lady who lived years ago, in Philadelphia, when the "black stone," now known as anthracite coal, was first introduced as a matter of fuel. The old lady looked at some of it. She had been used to those wide, hospitable, open fire places, in which half a cord of wood had been thrown in at a time, and the flames roared up the chimney, seeming to carry with them an invitation of hospitalfty spread abroad to all friends and comers. The old lady looked at this little bit of a coal fire in a grate and she said, "Well, that may be a first rate thing for you folks that like to burn *stuns*, but as for me, God provides his forests for fuel and I would like to burn them, lest I be flying in his face." God did provide the forests, but the rapacity of man swept them away. God in his infinite wisdom provided inexhaustible stores of coal too, which lie under us in all directions. They stimulate all our enterprises, they minister to our social needs, they supply our daily wants. The whales that furnished the oil for the lamps of our forefathers were hunted from out the seas. Nature, or God, as we choose to recognize, came to the rescue, and out of the bowels of Pennsylvania and Virginia, and other States, lifted up the oils to replace those that were taken from the bodies of the leviathans of the sea, and do we too risk with the old lady the danger in using them, of flying into the face of Providence? (Applause.) The stores of coal, gentlemen, are popularly supposed to be inexhaustible. If we have any geological knowledge, we know that if the stores of coal are measurably inexhaustible, the stores or oil are infinitely so; for wherever the carboniferous influence extends, there also oil will be produced. There has never been a demand in this world that was not met by an adequate supply. It seems to me that right here, in the city of Brooklyn, we can bring to you an illustration of this fact. One man, Charles Pratt, who is a large dealer in oils and the refined products of oil, has furnished. and agreed to furnish a very large quantity to several of our companies. The Mutual Gas Light Oompany—I apologize for naming them in the presence of *regular* gentlemen, but they are a gas company, as my friend, the President, will acknowledge—use vast quantities of oil. The Citizens Gas-Light Cumpany use a somewhat smaller, but still for them, a rather vast quantity. The Peoples Company of this city also use a large quantity. and the Harlem Company of New York also, and yet I assure you it has not raised a quarter of a cent, and we have made a contract—all four companies—with Mr. Pratt, for our supply of oil, at a ridiculously low rate for a whole year, and Mr. Pratt would be very glad to make contacts with all the other companies. As to the production of oil, I can assure the gentleman who has preceded me, that in the oil district of Pennsylvania, of which I know something, there is an inexhaustible store of this very commodity. So anxious are the producers to raise the price of oil in the markets of New York and Philadelphia to-day, that they absolutely stop work on wells, thus making a dead loss, for the simple purpose of raising the price of oil. There is a constant demand in this country for refined oil, which will produce a constantly increasing quantity of naphtha. I did not presume when I read my paper that I should be understood as urging the use of oil absolutely alone. I spoke entirely of the use of oil mixed with coal gases, or taking the place of the rich and high-priced illuminating coals. I there advance certain reasons for objecting to the use of oil alone. and present to your minds as scientific and practical men, a field for future development.

I should really dislike to emulate McIlhenny, in acknowledging myself in your presence as being an advocate of a belief, or want of belief in an age of progress. I think that the time will come, and that within the life of every man within the hearing of my voice, that all this cumbrous machinery and vast expensive appliances will be swept away, and our gas be manufactured cheaply, beautifully, cleanly. Do any of you gentlemen, manufacturing gas from coal alone, invite your lady friends to walk through your works as I do? I say to my friends that they can pass through my works without soiling a single white garment. Can you do the same? No, you cannot. My process is the poetry of gas making, as yours is the prose. (Laughter.) And I assure you, gentlemen, that should I conduct you through my retort house, which is yow a "deserted village," more suggestive of a past busy life than that of which Goldsm-th so poetically sings, and lead you into my naphtha gas works, you would see a nicely dressed contented man, probably smoking a leisurely pipe, looking as if he had nothing on earth to do to earn his daily wages, and yet he is making 300,000 feet of gas. This matter becomes important, Mr. President, on the question of commercial value, as suggested. Touch a man, as Mr. McIlhenny says, upon his pocket, and you touch the most vital instinct of that man. I have touched nine men upon their pockets, and they are pleased with my touching ways. (Cries of "Good!") It is a fact, gentlemen. Now, if these people, after eighteen months of absolute hard work, and spending money in the plans and in the extension of the works for the manufacture of oil gas, can make over and above that, the usual dividend. I cert inly have uncompromising facts to be presented to you.

Now I candidly say—I did not say it in my paper for the simple reason that I desired to provoke this very discussion—to come to our works. We will show you every record we have. I do not publish them as a public fact, but we will be glad to see you and glad to present to you actual figures that you may see for yourselves if I do not make gas better and cheaper than we did before. Mr. McIlhenny, I know, represents a company that does make coal-gas better and cheaper than any company that I know of. I speak from the card, for I know whereof I speak. But can any man pay $3·50 for labor and $8·25 for coal, besides paying for everything else in that proportion, and put his gas into the holders for less than ninety cents? I have done it, and I do it as a matter of record. I wish gentlemen to understand that every remark I make now, is based upon a dead year; the dividends are paid, the books closed up. Gentlemen can draw comparisons with their own neighbors. I cannot of course compare with companies located in parts of the country where coal is $5 in the sheds and labor $2.25. Such companies must figure from a basis of their own prices, to obtain an idea of the gain to be made in their own cases. We can make no comparisons without being possessed of the facts.

Mr. McIlhenny—Is there any difference now in consumption?

Mr. White—I will say that our district now averages from 4 to 5 per cent. better than it did last year. We ought to add 10 per cent. to our consumption, but the trouble is in the general financial difficulties, and is not chargeable to oil gas to any serious extent.

Mr. De Mill—I would like to ask a single question. The gentleman says his works are open to everybody. I want to know why it is that right here, in the very city of Brooklyn, where there is one company doing like that, other companies have concluded not to use that process, but are using coal—right in his neighborhood, right across the street—new works. I confess that I cannot understand such things, because if that is the best process for making gas, it certainly ought to be the best process in the city of Brooklyn, and the people who are erecting works, it seems to me, would adopt that plan. If that is the best plan, then it seems to me that the Manhattan Gas-Light Company are blinding their eyes in the use of coal. The Metropolitan Gas-Light Company of Brooklyn have erected new works in the last year, and they are making coal gas. I believe the Detroit Gas Light Company to-day has been for two years in direct competition with this very thing.

Mr. White—I beg pardon. It is not this very thing, but a different thing. You are in competition with the Gale-Rand patent, which is very different.

Mr. De Mill—Well, it is naphtha gas. I know it is better, and why I know it is better, there were gentlemen the day before I left home, put your gas in at $1.50, and they asked me $1 for the other. Now, why is that?

Mr. White—I give it up—it's too abstruse.

Mr. De Mill—I will say right here, before I leave, that a vast portion of the gas sold by the opposition in Detroit, is sold by my permission; in other words, if I go and say "You must take my gas," they will do it, because it is a better gas.

The President—I am satisfied, gentlemen, that we must leave this room now.

The Association then adjourned to meet tomorrow, October 22nd, at 10 A. M.

The London Board of Works and Gas.

At a meeting of the Metropolitan Board of Works, it was stated that several communications had been received and referred to the committee on the subject of the supply of gas to the metropolis, and the committee recommended that the solicitor be instructed to prepare a bill to provide an independent supply.

Mr. Richardson said he had extracted from the gas companies' accounts the amount paid by the metropolis for the supply of gas during the year 1873, and he found with surprise that it was no less than £2,544,-133, or as much as one-eighth of the whole assessment of the metropolis.

Mr. Fowler stated that it was absolutely necessary to get some control over the gas companies to protect consumers, and all the local bodies of the metropolis had been communicated with to bring about some definite settlement. All that had been done up to the present time had resulted in an increase in the price, and the hands of the Board were tied more firmly than ever. The most advisable course would be to apply to Parliament to say that this monopoly of the gas companies should be broken down.

It was resolved unanimously to adopt the report.—*Ironmonger.*

Natural Gas for Fuel.

In reply to inquiries from this office, we have received from Messrs. Rogers & Burchfield, the makers of a well-known brand of sheet iron, the following facts in relation to the use of gas for fuel at their works at Leechburg, Pa.

The weekly production of our Leechburg works is about 70 tons of sheet iron; to make this amount 9,100 bushels of coal, or 130 bushels per ton, would be required if we used coal for fuel. We have now been using gas for about seven months, procuring it from an abandoned oil well, 1,250 feet deep, situated about 1000 feet from the works, and from which the gas is conveyed by a three-inch pipe. The branch pipes leading to each furnace are half an inch in diameter. We make all our steam with gas; we have one battery of four boilers driving an engine of six foot stroke, thirty inches in diameter, at the rate of forty-five strokes per minute, which furnishes power for six pairs of sheet rolls and one bar train, from the same boilers steam being taken to drive two hammers; another boiler furnishes steam for a blowing cylinder which supplies the blast for seven knobbling fires and one refinery; another boiler furnishes steam for a small engine driving the rolls for the manufacture of tin plate: the gas is applied directly in five puddling furnaces, in which the waste is some three or four per cent. less than with coal, and the quality of the iron is greatly improved; we also furnish gas for four sheet furnaces, and find it much superior to coal, the waste in these furnaces being about five per cent. less than with coal, and further advantages

gained are softer iron and a finer surface to the sheet; we have three large annealing furnaces, where we an neal in air-tight boxes, putting about ten tons in each box, requiring about ten hours to complete the process of annealing, and, we think, saving about one half in annealing boxes; and in the tinning establishment the pots of tin into which the sheets of iron are dipped, are also heated by gas.

To use gas there is no change required in the construction of puddling furnaces, except that we use the patent water necks. These necks are an absolute necessity in using gas for fuel, as without them the intense heat generated by the gas destroyed the lining of the stack and melted off the dampers as fast as we could replace them. The grate bars, however, never burn out, and the puddlers' tools last about three times as long as they did when we used coal. In our heating furnaces where we cannot use water necks we are compelled to use a jet of steam to lessen the heat.

Our production has increased about 33 per cent. since we began to use gas, and the iron made commands from $10 to $20 per ton more than the same class of iron manufactured at our Apollo works, where we use coal, the iron being made from the same class of stock.—*Bulletin of the American Iron and Steel Association.*

Paraffine.

At a recent meeting of the Society of Arts, London, Mr. Frederick Field, the distinguished English chemist and mineralogist, gave the following interesting information:

In pursuing his celebrated researches upon the tar obtained from the red beech, Reichenbach discovered in the ultimate portion of his distillates a white translucent substance, to which he gave the name paraffine (from *parum* and *affinis*), owing to the comparatively slight action exerted upon it by most chemical reagents. The tar was submitted to repeated fractional distillation, and the portions passing over last were mixed with strong sulphuric acid and violently agitated. After standing in a warm place for some hours, the paraffine floated upon the carbonized residue in the form of a pale colored oil, which, after cooling, solidified, and was pressed between folds of bibulous paper. By frequent crystallizations from boiling ether, it was obtained as a brilliantly white body, highly plastic and somewhat unctuous. For many years it was simply regarded as a chemical curiosity. It is now annually made, as will presently be shown, by thousands of tons.

Paraffine is a pure hydrocarbon, having no oxygen whatever, and its analysis has given the following percentage composition:

Carbon, 85·16; hydrogen, 14·76.

Paraffine, when pure, is perfectly colorless and translucent; after slightly warming, it becomes highly plastic, and can be readily moulded with the greatest ease. Hence, it differs in some respects essentially from spermaceti, with which it has often been erroneously compared, as well as from stearic acid and other bodies used in the manufactnre of candles.

From this plasticity, in warm rooms, paraffine candles (if not of a very high melting point) are liable to bend; while on the other hand, those made of sperm or stearic acid, although of a lower melting point, remain erect. Of course, as has been observed, this very much depends upon the fusibility of the substance, and the harder descriptions of paraffine are always selected for candles which have to be subjected to much heat.

Liquid paraffine is very mobile, and can be filtered through paper almost as readily as water itself.

It is scarcely acted upon, even by fuming sulphuric acid, unless at very high temperatures, so that it can be purified by this means from any other organic substances with which it may have been associated, they being immediately charred by contact with sulphuric acid.

When submitted for a length of time to the action of chlorine or bromine, chlorinated or brominated compounds are formed with disengagement of torrents of hydrochloric or hydrobromic acids.

Mr. MacIvor, who has devoted many years to the study of paraffine, says that, after this body is acted upon chlorine, it first becomes a gummy looking solid, afterwards liquid, colorless and transparent; and as the passage of the chlorine is continued, a hard brittle resin is the result. The substance consists of

Carbon	29·55
Chlorine	66·82
Hydrogen	3·39

This gentlemen has also remarked that the paraffines having the highest melting point are those which are most easily acted upon by the gas.

Iodine dissolves in paraffine, imparting to it a beautiful violet color, which becomes brown as the paraffine solidifies; but the action of this element upon the hydrocarbon is very feeble, no apparent decomposition taking place after prolonged heating for many hours.

By the action of strong nitric or sulphuric acids, M. Campion discovered a new body, which he calls paraffinic acid, and describes it as a bright transparent liquid, of a very inflammable nature.

Strong nitric acid yields a series of interesting compounds, lately studied by Schorlemmer and others.

M. Furdred informed me some years ago that, when paraffine is acted upon by sulphuric acid to which a few crystals of permanganate of potash have been previously added, the action is so violent that light and heat are involved, and even at times accompanied by explosion. The best way of trying the experiment is to heat up the acid and permanganate in a tube, and drop a small piece of paraffine in the warm liquid. When they are all three placed together in the tube and heated upthe action is not near so violent. Success does not always attend the experiment but it can be tried. The decomposition convinces us that the word paraffine (little affinity) is slightly a misnomer.

Paraffine is insoluble in water, very sparingly soluble in alcohol, even when boiling, more so in ether, exceedingly so in naphtha, sulphide of carbon and aniline.

When heated with sulphur at a moderately high temperature, it is decomposed, carbon separates, and abundance of sulphuretted hydrogen is evolved. This fact may be of interest to chemists, as affording a ready source of this indispensable reagent in the laboratory. The two substances, the paraffine being in large excess, are heated together in a flask, when a steady and copious flow of the gas is obtained, and the characteristic action of the gas upon lead salts will be seen by the experiment.

With the regard to the beautiful translucency of paraffine, which, in spite of certain drawbacks, has made this body such an unusual favorite as a means of light, Mr. MacIvor informs me that, if, when melted, it is cooled very gradually and subjected to a slight and steady pressure, it becomes actually transparent, like ice, but that a blow, or even a scratch, will alter its molecular structure, and cause it to re-assume its normal appearance. As this change is also produced upon remelting it, however cautiously, that triumph of manufacture in this department of industry, namely, making a transparent candle, is yet in the distance.

Mr. Gellatly has shown that the specific gravity rises with the melting point of paraffine. Thus paraffine melting at about 60° Fah. has only a specific gravity of 0·823; at 128° Fah., which may be considered a very good average (rather high, perhaps), it has a specific gravity of 0·911: and a specimen of an extraordinarily high melting point (176° Fah.) was as high as 0·940, more than 10 per cent. above that at 50° F.

Paraffine is obtained in large quantities by distillation from oil shales.

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MONDAY, NOVEMBER 16, 1874.

WISHING TO MAKE THIS JOURNAL an organ of intelligent discussion to those of our readers who may wish to gain or give information on the subjects to which its columns are devoted, the publishers solicit letters from all among them who make the study of these subjects a pleasure, or a profession.

Subscribers would confer a favor upon us by remitting *CHECKS*, or *POST OFFICE MONEY ORDERS*, as we are frequent losers where money is enclosed in letters.

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PARLOUS WORDS.—A Journal and an editor that people don't talk about, and sometimes abuse are rather poor concerns. The editor who expects to receive much charity or gratitude will soon find out his mistake; but he should say what he conscientiously thinks right, without regard to smiles or frowns.—*Ex*

THE GAS-LIGHT ASSOCIATION.

In this issue, our very thorough report of the proceedings of the late important session of the National Gas-Light Association is brought down, we believe, to the close of the first day of the session; and the significance and value of these proceedings will already have become apparent to all. We do not think that any reader will easily entertain, or retain, a disbelief in the transition state of things in gas-circles in this country, or in the crisis impending, which we have long foreshadowed in these columns; through which we expect the gas profession to become an eminently progressive, investigative, and scientific body of men, which will then command the respect and confidence of the public, and be held in honor, by all men whose opinion is of value. Of this transition or revolution, of practice on the part of the gas-profession and of opinion on the part of the public; the Association is to be—with its present palpable aims and tendencies—as we always have anticipated, the most powerful and irresistible promoter.

Indeed, when we indulge just now in a little retrospective thought—a kind of thought which, we must permitted to say, is here more instructive than delightful—it seems to us almost admissible to apply the language of the great bard

> "Can these things be?
> And overcome us like a summer cloud,
> Without our special wonder?"

Only two years ago, would it have been supposable, that the most distinguished men of the gas fraternity would, not only patiently, but with the deepest interest, have listened to, and even joined in, a public discussion of the merits of petroleum and petroleum-naphtha as substitutes for gas-coal, or of anthracite water-gas as a subsidiary to coal-gas? Would members of the fraternity have then come all the way from Canada, avowedly and expressly to listen and contribute to this kind of polemics? Well does our retrospect recall how even so little a time ago these things were a scoffing and a reproach,

> "A thing for laughter, fleers and jeers."

Well do we remember the "cold shoulder" from valued and respected friends, the personal and professional neglect, the imputations of venality—but enough: "Let the dead past bury its dead." We have now to live in the living present. One or two more remarks and we have done with this querulous aspect of the business. Let us hope, now that these subjects have been admitted within the pale of serious discussion and investigation, that one at least of *our* motives will be appreciated, and that credit may be given to us by the profession for having builded better for them than they knew. What we mean is this—that this journal, by keeping in advance of the fraternity in this respect, and entertaining in these columns, which have been the only exponents of the profession to the public, subjects which we knew that public could not allow to die, and which we knew would sooner or later move even the mountains of prejudice that overwhelmed them—we have certainly kept the gas interest in a much better attitude before the public, and warded off accusations that would otherwise have been far more forcible, of utter and universal contumacy and obstinacy, in resisting the logic of events and the spirit of the age.

Nevertheless, even supposing what seems scarce supposable, that this appreciation and this credit should be withheld from us, it will not affect our future course. This Journal proposes to be hereafter, as heretofore, more than a mere current record, and to be eminently a Journal of Progress, leading the van in all those things which appear, on general principles, to conduce to the welfare of the interest it represents; stemming the tide of prejudice, and attacking the "inertia of ignorance" with the slowly-acting but sure levers of investigation and inductive reason. If we seem at times possibly to err on questions of "expediency," let it be borne in mind that these are but transient and ephemeral things, phantoms of a day, whose place is known no more, when once done away with. General principles, only, are deathless; and even if temporarily eclipsed, will shine out again with always brightening lustre.

In the grand and incessant combat to discover, demonstrate, vindicate, establish and re-establish these general principles, a struggle which constitutes the life of Science, and whose victories constitute Human Progress; the AMERICAN GAS-LIGHT ASSOCIATION and the AMERICAN GAS-LIGHT JOURNAL will be natural allies, fellow-workers, and fellow-soldiers. It was quite fitting therefore that the Journal should have fought, as it did fight, to establish the autonomy of the Association, and to make it independent of influences which would have been incompatible with its continued existence—with a favorable consideration and regard from the public—and with its usefulness as an engine of progress in the great and useful art of artificial illumination, and in the study of the experimental sciences which have created this great art, and on which its future is dependent.

It was simply and solely on the ground of expediency, that these influences gained a certain transient sway in the incipient infancy of the Association; and, as we hoped they would at the time, they have now evidently died a natural death: having been—though doubtless of "eminently practical" origin—in reality totally unpractical and chimerical. Let us therefore urge now that certain distinguished members of the Fraternity, who then withdrew, through having wisely foreseen the unwisdom of the ideas then sought to be incorporated, should return and put their strong shoulders to the wheel again, for the sake of the common cause.

Our own views and comments, regarding the petroleum-gas question; with our summing up of the showing thereof in the papers presented and the discussions following, must be appropriately deferred till the whole matter is before our readers. The subject was continued far into the second day, and a second most important communication was made by H. H. Edgerton, Esq., Superintendent at Fort Wayne, Indiana: who was among the earliest pioneers in this field. We shall then have some remarks to make which we trust may shed some little further light, on the principles, at least, that are involved.

OUR RUINED IMMIGRATION.

We owe the facts, and a few of the ideas, of the following remarks, to the New York *World*, before the election; though we have divested them of the *political* views sought to be supported by the facts. Our own explanation of the state of things, to go to the bottom, is the almost universally superficial education of the American people, with the prevalence of the pseudo-*practical* fallacy.

Thus, among Americans, an almost universal contempt for Science. General principles, that is Science, are despised or ignored, and transient success, however gained, is almost deified, as "practical." Hence, in every pursuit an inevitable rule and mastery of ignoramuses and char-

latans; whence unnatural inflation and blind gambling in everything. Inflation has simply been followed by collapse; as it will be again and again, if not abandoned and displaced by systems founded on scientific principles, established by induction from all experience. America is not an exceptional country, and cannot escape from the laws either of physical nature or of human nature. Like causes will always produce, as they have now produced, like effects.

Look at the alarming decrease of our immigration for the first nine months of the present year. In the port of New York, where nearly all the immigrants coming to this country land, the comparison during the last three years, stands thus:

Emigrants arrived at the port of New York in 1872, 263,843; 1873, 258,985; 1874, 153,301.

Thus it will be seen that during nine months of this year there was a falling off of 105,684 emigrants as compared with the preceding three-quarters of 1873, and 110,542 as compared with the same period of 1872.

Statistical demonstrations widely differ as to the average value of an emigrant to the UNITED STATES. Some authorities place the value as high as $1,500 each; others as low as $800 each. But if we take the average of $1,000 per head, our loss this year has been $105,684,000 in the non-arrival of the usual quota of emigrants. But this is not all. During the summer steamers were crowded with outward-bound passengers, working-men going home to Europe to seek labor which here they could no longer find.

The truth is, we are declining in every branch of industry; hundreds of thousands of artisans and sturdy workingmen are tramping about our large cities, paupers out of work. New England is pauperizing her labor still further by only giving her artisans two-thirds work. Our export trade in manufactures is gone beyond all belief or calculation.

The farmer, blessed this year beyond all precedent with a large crop, will find himself more in debt when the year comes round than ever—simply because it costs him 95 cents or $1 to raise a bushel of wheat, and he has to sell it in the West for 80 cents. Therefore, the more he has harvested the more he will lose.

While the country is teeming with a plethora of money (such as it is), there is not the slightest confidence in any enterprise.

In the meantime our immigration will be further stayed by the tens of thousands returning to their native lands, carrying with them their tales of misery, exaggerated no doubt tenfold by their disappointment.

Now, *afttr* the election, we assert that no change of administration, or of office-holders, is going to have any immediate effect. The fundamental causes, which we have above truly set forth, must be rooted out. Will there be any movement tending in this direction? *Nous verrons.* We shall watch and chronicle the symptoms, if any.

We do not deem that we are trenching on politics when we say something from our point of view, as above, to the two parties, the one which now sees the sceptre fading from its grasp, and the other which is now possibly drunk with that very success, and that kind of success, which we above allude to.

Of the former, we ask: was it not your claim, boast, and pride that you chiefly comprehended the education, cultivation, wealth and intellect of the land? Did you use these advantages, in the way of reforming the crazy idea that pervades our people, that "practical" and "successful" men, however empirical, can defy the principles of science and the laws of Nature, and force their ends? Let the condition of the railway and iron interests respond. To the other: Will you not follow the example of other nations who have been prosperous; and select for your counsellors and leaders certain classes of men, who now have no voice or influence in this land; namely those classes who study past human experience and the fixed principles deduced therefrom; and who should be trustworthy exponents—so far as man is permitted to be—of the counsels that should guide a people whose existence must chiefly be a formative and progressive one, and whose progress is as yet chiefly in the womb of the future?

DEFERRED MATTERS.

It is really getting to be "time to be too late" almost, in apologizing for the delay—in some cases almost hopeless—that we have been forced to be guilty of, regarding many things of interest and importance to the readers of this journal. So many are these in number, that in attempting to specify all, besides using precious space, we should no doubt find that our memory would fail us regarding some; and it will be prudent therefore to put forward but a few, as samples of the augmenting mass with which our portfolios are overflowing. Thusly:

The New Cookery Schools and Gas Cookery:

Metropolis Gas-Matters, and the doings of the Board of Health.

Divers Water-Supply Matters; including something sanitary and significant about the Croton:

A most important Report on the Nova Scotia Coals; interesting to a large section of our gas fraternity; by Alexander Heatherington, whose name, more than any other, is identified with the subject.

A Report on Ohio Coals, by Prof. Sterry Hunt; which is a mine of information and suggestion:

Petroleum-Motors: Petroleum Trade and Transportation Movements—Petroleum-gas matters we bid fair to have enough of now, soon to wear off all novelty:

The late meetings of the National Societies of Engineers and Architects in this city; which gave us several points of interest and importance to the readers of this Journal, had we space and time.

Enough. This is but a beginning. In this issue, it is found necessary even to leave out a batch of our Chemical Excerpts, already in type; or otherwise the interesting and powerful address of Mr. McIlhenny of Washington, to the Gas-Light Association, on the Petroleum-Gas question—and the admirable debate with Captain White, the gem of the occasion, which ensued—would have had to go over, at least in part; to which we cannot for a moment agree, though in our next issue we feel bound to submit some rather close and critical remarks anent the same.

The patrons of the Journal will, we trust, forgive the hint, that we do not hold them guiltless, in reference to the fact that our means are inadequate to do more than we do, in chronicling and discussing all things collaterally interesting to them. It is undeniable that the patronage of this Journal does not increase in proportion to it usefulness, and chances and prospects of usefulness; and we must venture to remark that without the friendly aid and co-operation of its present patrons, in increasing the circulation, this journal cannot, more than any other, keep up in increase of space and expense, with the increase of demand for these requisites.

SUNDAY REST IN GAS WORKS.

Much of the most valuable digest of this topic that has yet appeared is the paper read by Mr. Walker, Superintendent at Milwaukee, Wisconsin, to the Association, which we have to-day the pleasure of laying in full before the world. This gentleman, and Mr. Forstall, Superintendent at New Orleans, whose recent communication to us on the subject will be remembered by all, must be classed together as *par nobile fratrum.* Those who have remained in doubt after reading Mr. Forstall, must entirely yield to conviction on reading Mr. Walker. Such powerful agitation of this question must certainly be followed by action on the part of many, and the evidence will thus increase and multiply, of the beneficent results, both to men and to masters, of this reform. Thus fresh impulse will be given to a work of mercy, which blesseth both the giver and receiver, which—

"droppeth like the gentle dew from Heaven."

DEAN'S SCREENING SCOOP SHOVELS.—The attention of parties interested is called to the above-named advertisement on this page. Samples will be sent free to any gas company desiring them. The price is $30 per dozen.

OFFICE OF

MANHATTAN LIME HURDLE CO.

HAVERHILL, MASS., October 21, 1874.

TO WHOM IT MAY CONCERN:

The Manhattan Lime Hurdle Company, having been maliciously misrepresented to certain Gas-Light Companies with whom we are having business transactions, by a party who it will be discovered, upon inquiry, to be devoid of responsibility or personal integrity; we are therefore obliged in justice to ourselves and stock-holders of our Company, to make the following statements:

First—That the Manhattan Lime Hurdle Company is a Corporation, legally chartered by the Secretary of the Commonwealth of Massachusetts, under the laws thereof.

Second—That the above Company will hold any party using a Lime Tray or Hurdle made in part of round flexible wood or rattan, liable to the extent of the law, for infringement of our patents which cover entirely the use of such wood for such purpose in manner set forth.

Third—And we guarantee full protection from any costs or damage to all parties using a Lime Tray or Hurdle furnished by us. (Signed)

J. L. BLAISDELL, President.
GEO. W. DAY, Treasurer.

Directors—A. P. JAQUES, J. W VITTUM, BERIAH FOSTER.

We, the undersigned, would state that the above named are well known responsible business men of our city.

(Signed) J. V. Smiley, Mayor; Moses How, Jas. H. Carleton, John A. Appleton, J. L. Hobson.

The above are officers of the following Companies and Banks of our city: President Haverhill Gas-Light Company, President First National Bank. President Aqueduct Company; President Haverhill National Bank. Cashier Merrimack National Bank.

$30 per Dozen.

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NEW PATENT (1873)

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FOR COKE, COAL, ASHES, AND OTHER SUBSTANCES.

The frames are 12 by 18 inches, with seven bars, and are made of the best malleable Iron. They can be wired between bars by an arrangement of holes a quarter of an inch apart, by an ordinary person, to screen any size substance desired. They are warranted to be the most durable and practical Screening Shovel made, or money refunded.

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369-6m

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Portland Cement, Roman Cement, Keene's Cement.

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368-1y

To Gas Companies.

WANTED—A SITUATION BY A THOROUGHLY competent man as Engineer or Superintendent. Has had twenty years experience in Building and Managing Gas Works. Can furnish the very best of references, and is not afraid to work. Address ENGINEER, care of this Journal.

Columbia Conduit Company vs. the Western Pennsylvania Railroad.

DECISION AGAINST THE PIPE COMPANY RENDERED IN THE DISTRICT COURT—THE CASE TO BE APPEALED.

Judge Ewing in the District Court on the 12th of September, delivered an opinion in the case of the Columbia Conduit Company vs. the Pennsylvania and West Pennsylvania Railroad Companies. The ground of contention, as our readers are aware, was the refusal of the companies to allow the conduit company to lay their pipes under the West Pennsylvania Railroad at Fairview station.

The conduit company then asked leave to give an indemnified bond to secure the railroad companies from damage, and asked the Court to appoint viewers to assess damages sustained by the railroad companies. The Court refused either to allow the filing of the bond, or to appoint viewers.

Judge Ewing, in concluding his opinion, said:

We are unable to discern in any part of the act of 1874 a legislative intention to confer on companies operating pipe lines the Commonwealth's right of eminent domain, or to extend by implication the provisions of the acts of 1872 or 1873. But if such had been the intention, and the act of 1874 had expressly declared the provisions of the acts of 1872 and 1873 to be so extended, it would have been void and inoperative.

The sixth section of article third of the Constitution declares that—

"No law shall be revived, amended, or the provisions thereof extended or conferred by reference to its title only, but so much thereof as is revived, amended, extended or conferred shall be re-enacted and published at length."

The construction claimed by the plaintiffs for the eighteenth clause of the second section of the act of 1874, would be so clear and palpable a violation of this plain constitutional provision—which was adopted to prevent the possibility of such enactments—that we cannot suppose that the Legislature in adopting the eighteenth clause of the second section in the act of 1874 had any intention to do more than give a mode of interpreting the terms "mechanical, mining, manufacturing or quarrying, business," as embraced in the clause.

That the legislature has the power to charter pipe companies to transport oil for the public from the petroleum regions to any part of the state under such regulations as will secure the public rights, and to clothe such corporations with power to take private property for such purpose, we have no doubt, and we are convinced that the public interests urgently demand such legislation.

But we are unable to discover any legislation authorizing the Columbia conduit company or any other company to so appropriate and take land in Alleghany county for such purposes.

As this case will, doubtless, and should, go to the Supreme Court for final decision, in order "that all the questions may be raised in that Court," we overrule all the other exceptions filed to the approval of the bond tendered; and so far as not herein before specifically mentioned, the points raised in the answer are to be considered as decided adversely to the respondents.

For the reasons above given, the court refuses to approve the bond filed, and refuses to appoint viewers prayed for in the petition, and the petition is dismissed at the cost of the petitioner.

To which decree of the court the counsel for plaintiff except, and thereupon bill sealed for plaintiff.

Judge White coincided with Judge Ewing.

Mr. Woods announced that the case would be taken to the Supreme Court.

Mr. Charles Collier, of Selma, Ala., has purchased the Rome, Georgia, gas works, paying for them $20,000. He will get possession of them on the 1st of November, and will at once proceed to overhaul and put them in first-class condition. We take occasion to say to the people of Rome that they can rest assured that Mr. Collier will give them splendid gaslight. He is thorough master of the business, and in addition thereto, is a clever gentleman, and an enterprising go-ahead business man.—*Selma Times.*

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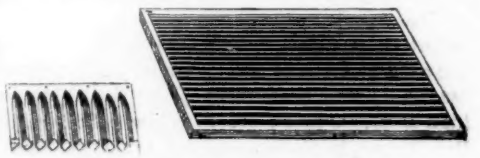

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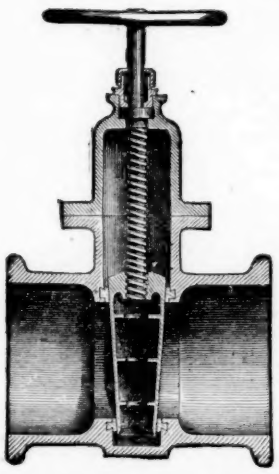

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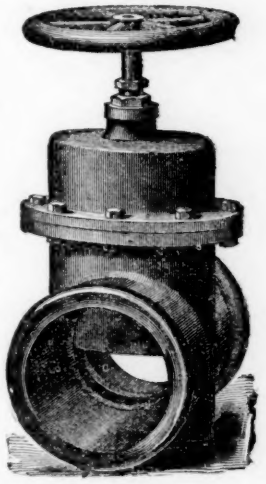

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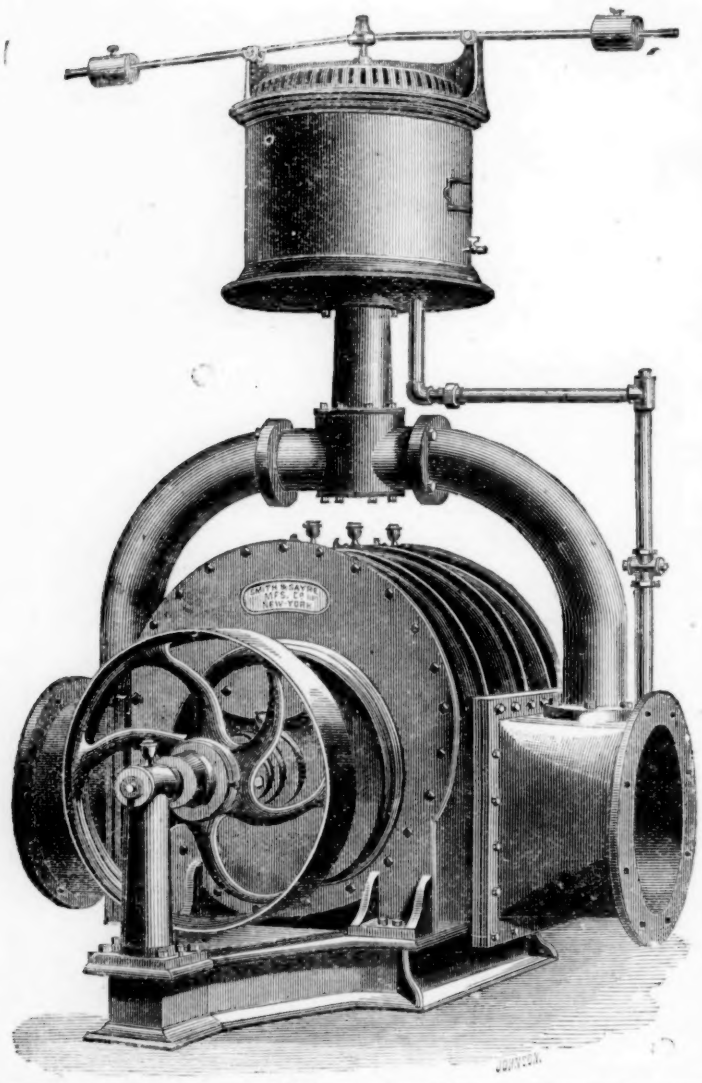

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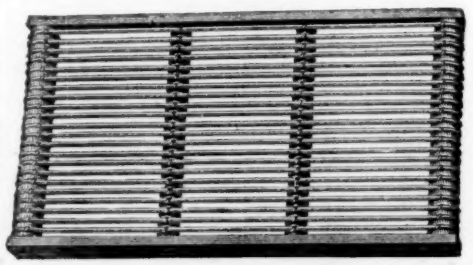

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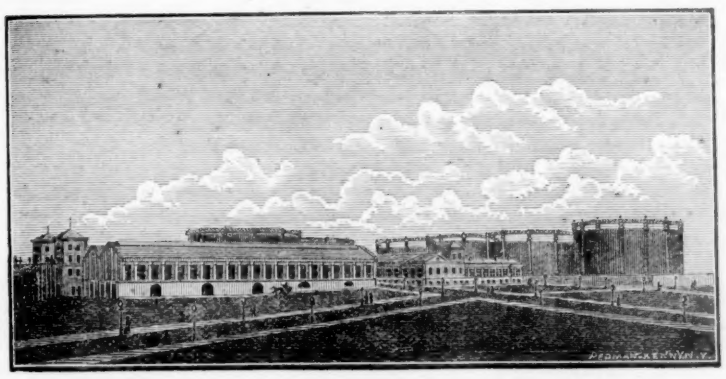

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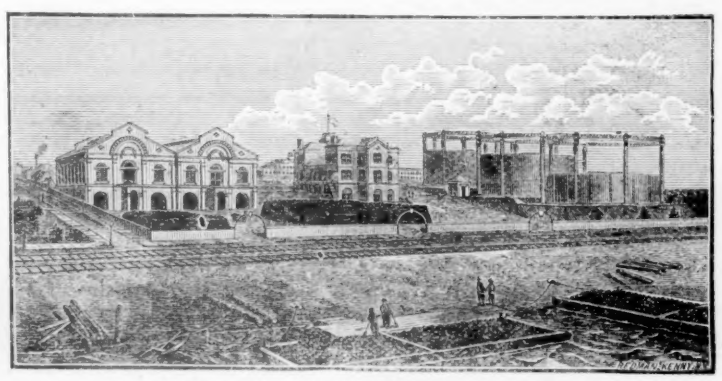

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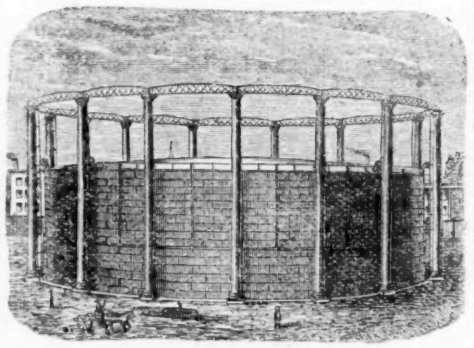

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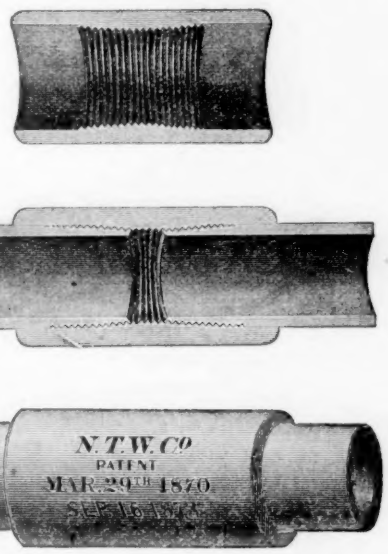

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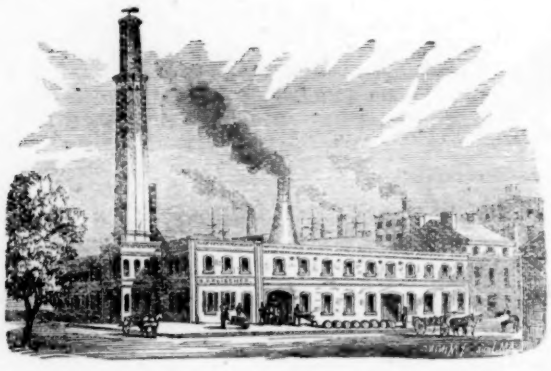

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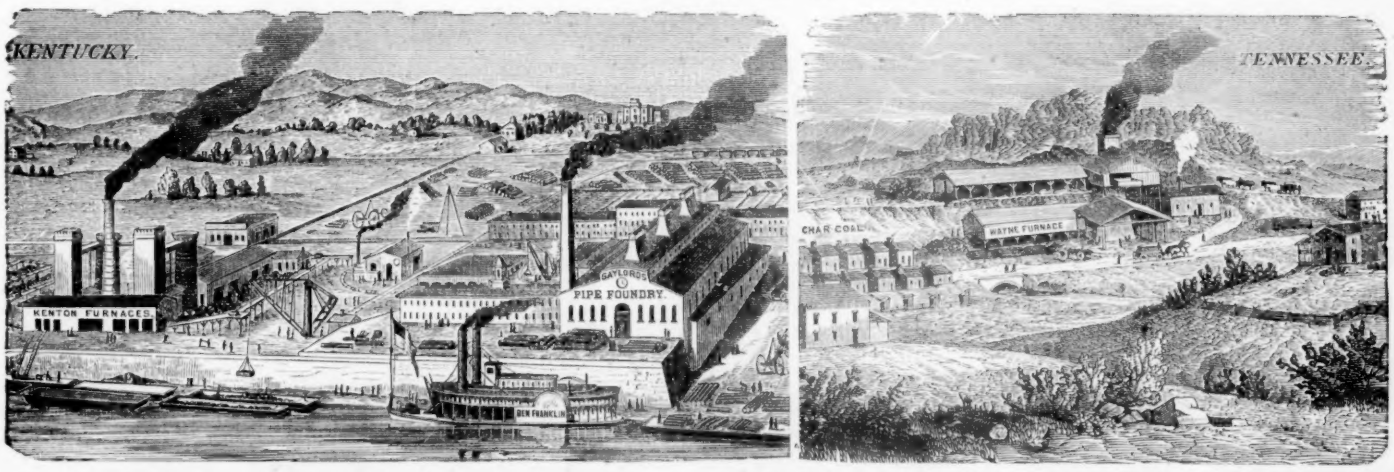

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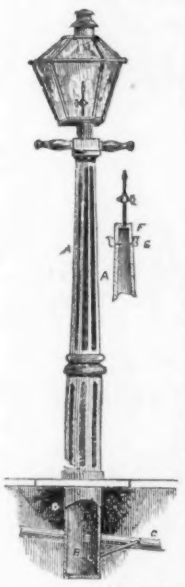

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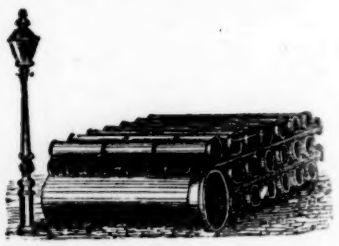

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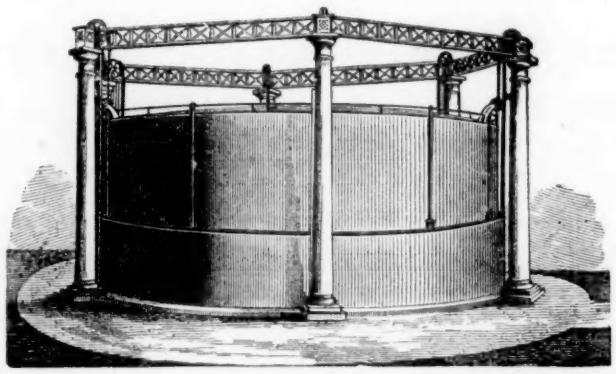

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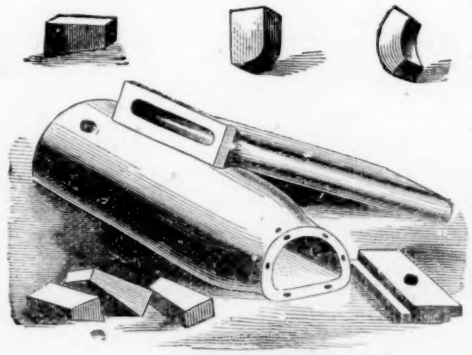

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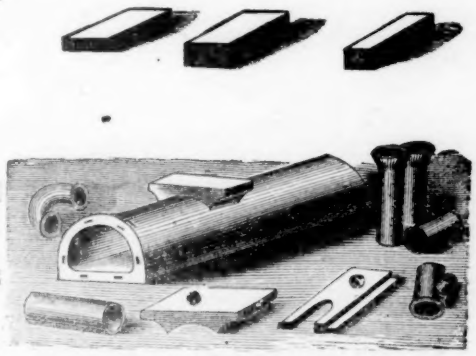

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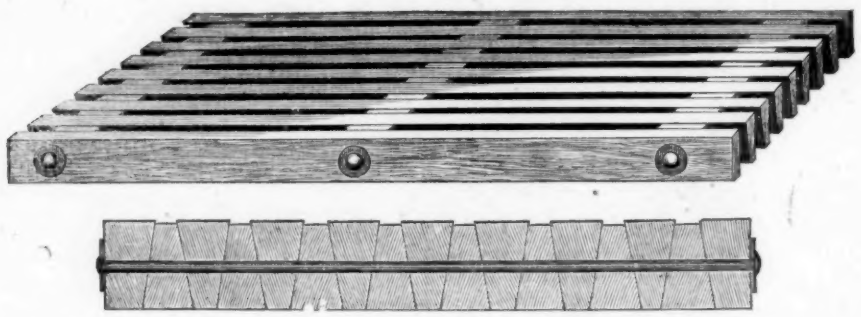

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